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CLAIMS:

What is claimed is:

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1. A computer implemented process for applying a set of rules, the process comprising:
- (a) placing a pre-method control before logic of a method and post-method control point after the logic of the method;
 - (b) associating a set rules with each control point based on a class of object in which the method resides, name of the method, and type of control point, whether the pre-method control point or the post-method control point;
 - (c) invoking the method, wherein encountering each control point during the execution of the method comprises:
 - (i) determining if the encountered control point is active;
 - (ii) on the basis of an active control point:
 - 1) selecting rules based on a set of rules associated with the active control point associated in step (b);
 - 2) running the selected rules;
 - 3) obtaining results from running the rules; and
 - 4) combining the results using a combining algorithm specified by the control point.

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1 2. A computer implemented process for applying a set of ✓
2 rules comprising:
3 (a) defining an object;
4 (b) defining at least one method in the object;
5 (c) defining a control point just before logic of
6 at least one method; and
7 (d) associating a set of rules with the control
8 point.

1 3. In the process of claim 2, the step of defining a
2 first control point further comprises:
3 (a1) decorating the object to dynamically insert a
4 first control point such that the object
5 acquires this new control point.

1 4. In the process of claim 2, the step of defining at
2 least one control point further comprises:
3 (c1) adding the at least one control point through
4 the technique of generating required code in
5 the compiler or with a preprocessor.

1 5. In the process of claim 2, the step of defining at
2 least one control point further comprises:
3 (c1) manually inserting the at least one control
4 point and encoding the control point in the
5 implementation of a hosting object.

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1 6. In the process of claim 2, the step of defining at
2 least one control point further comprises:
3 (c1) externalizing the at least one control point as
4 a class and instantiating it at the at least
5 one control point.

1 7. The process of claim 2 further comprises:
2 (e) defining a second control point just after the
3 logic of each method; and
4 (f) associating a second set of rules with the
5 second control point.

1 8. In the process of claim 7, wherein the rules in the
2 second set of rules are associated to the second
3 control point without considering the rules in the
4 first set of rules associated with the at least one
5 control point.

1 9. In the process of claim 7, wherein a set of rules is
2 defined as having N number of rules, N being at
3 least zero.

1 10. In the process of claim 2, the step of associating
2 at least one control point further comprises:
3 (c1) defining, with a control point, at least one of
4 a rule selecting algorithm and a rule-results
5 combination algorithm.

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- 1 11. The process of claim 2, further comprises:
 2 (e) changing rules associated with the control
 3 point contained in the set of rules.

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 1 12. A computer implemented process for applying a set of
 2 rules, comprising:
 3 (a) invoking a method in an object;
 4 (b) encountering an active control point during the
 5 invocation of the method;
 6 (c) selecting rules associated with the method of
 7 the object at the control point;
 8 (d) invoking the rules; and
 9 (e) combining results from invoking the rules.

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 2 13. The process of claim 12, wherein the rules perform a
 3 variety of actions conditioned by the fact that
 4 rules may be associated with particular, regularly
 5 occurring points in the object model.

- 1 14. The process of claim 12, wherein the rules perform
 2 at least one function which varies over time.

- 1 15. A process of claim 12, wherein a control point
 2 occurs just before logic of the method begins, just
 3 after the logic of the method completes, or at both
 4 just before logic of the method begins and just
 5 after the logic of the method completes.

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1 16. A computer implemented process for applying a set of
2 rules comprising:
3 (a) defining an object;
4 (b) defining at least one method in the object;
5 (c) defining at least one control point in the at
6 least one method;
7 (d) defining rules to the at least one control
8 point on basis the object's class name, method,
9 name, and position of the at least one control
10 point in the method.

1 17. In the process of claim 16, further comprising the
2 step of activating at least one control point having
3 associated rules.

1 18. The process of claim 16 further comprising:
2 (e) encountering a first control point;
3 (e) running the rules associated with the first
4 control point; and
5 (f) affecting behavior of the object base on
6 running the rules associated with the first
7 control point.

1 19. In the process of claim 18, the step of affecting
2 the behavior of the object further comprises:
3 (i) associating different rules to a control
4 point.

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1 20. In the process of claim 18, the step of affecting
2 the behavior of the object further comprises:

3 (i) defining another control point.

1 21. In the process of claim 18, the step of modifying
2 the object further comprises:

3 (i) associating rules to a second control
4 point.

1 22. In the process of claim 16, further comprising a
2 step of deactivating the at least one control point.

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1 23. A computer implemented process for applying a set of
2 rules, comprising

3 (a) defining an object;

4 (b) defining a method in the object;

5 (c) defining a first control point of the method;

6 (d) determining rules associated with the first
7 control point;

8 (e) defining a second control point of the method;
9 and

10 (f) determining rules associated with the second
11 control point.

1 24. A computer implemented process as in claim 23
2 further comprising:

3 (g) separately selecting, running and combining the
4 results of rules determined to be associated
5 with either control point.

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1 25. In the process of claim 23 wherein the first control
2 point is a pre-method trigger point.

1 26. In the process of claim 23 wherein the second
2 control point is a post-method trigger point.

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1 27. A computer implemented process for defining an
2 object comprising:
3 defining an object;
4 defining a method in the object by:
5 defining method logic;
6 placing the method logic in the method;
7 defining at least one control point; and
8 placing the at least one control point in the method
9 wherein the method logic is continuous.

1 28. A computer implemented process for defining an
2 object as in claim 27, wherein the step of placing
3 the at least one control point further comprises
4 placing the at least one control in the method
5 before the method logic.

1 29. A computer implemented process for defining an
2 object as in claim 27, wherein the step of placing
3 the at least one control point further comprises
4 placing the at least one control in the method after
5 the method logic.

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30. A computer implemented process for defining an object as in claim 27, wherein the at least one control comprises two control points and further comprising:

- placing a first control in the method before the method logic; and
- placing a second control in the method after the method logic.

1 31. A computer implemented process for defining an
2 object as in claim 27, further comprises:
3 flagging the at least one control point on the basis
4 of being active.

1 32. A computer implemented process for defining an
2 object as in claim 27, wherein the step of defining
3 the at least one control point further comprising:
4 defining a rule selection algorithm associated with
5 the at least one control point.

1 33. A computer implemented process for defining an
2 object as in claim 27, wherein the step of defining
3 the at least one control point further comprising:
4 defining a rule result combination algorithm
5 associated with the at least one control point.

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1 34. A computer implemented process for defining an
2 object as in claim 27, wherein the step of defining
3 the at least one control point further comprises:
4 defining a rule selection algorithm for the at least
5 one control point; and
6 defining a rule result combination algorithm for the
7 at least one control point.
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1 35. A computer implemented process for defining an
2 object as in claim 27, further comprising:
3 associating at least one rule with the at least one
4 control point.

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1 36. A computer implemented process for defining a rule
2 comprising:
3 creating the rule;
4 associating the rule with an object class;
5 associating the rule with a method within the object
6 class; and
7 associating the rule with an occurrence of a control
8 point within the method.

1 37. A computer implemented process for defining a rule
2 as in claim 36 wherein the occurrence of the control
3 point within the method being before method logic.
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1 38. A computer implemented process for defining a rule
2 as in claim 36 wherein the occurrence of control
3 point within the method being after method logic.

1 39. A computer implemented process for defining a rule
2 as in claim 36, further comprising:
3 associating the rule with another object class.

1 40. A computer implemented process for defining a rule
2 as in claim 36, further comprising:
3 associating the rule with another method within the
4 object class.

1 41. A computer implemented process for defining a rule
2 as in claim 36, further comprising:
3 associating the rule with another control point
4 within the method of the object class.

1 42. A computer implemented process for applying a set of
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules associated with the method
7 comprising:

8 encountering a control point associated with
9 the method;
10 determining if the control point is active; and
11 finding at least one rule associated with an
12 active control point.

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1 43. A computer implemented process for applying a set of
2 rules as in claim 42, wherein the step of finding at
3 least one rule further comprises:

4 accessing a selecting algorithm associated with
5 the active control point; and
6 selecting at least one rule using the selecting
7 algorithm.

1 44. A computer implemented process for applying a set of
2 rules as in claim 42, where in the step of
3 processing rules further comprises:

4 running the at least one rule;
5 determining results from running the at least
6 one rule;
7 accessing a combining algorithm associated with
8 the control point; and
9 combining the results using the combining
10 algorithm.

1 45. A computer implemented process for applying a set of /
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules comprising:
7 encountering a control point;
8 accessing a selecting algorithm associated with
9 the control point; and
10 selecting at least one rule using the selecting
11 algorithm.

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- 1 46. A computer implemented process for applying a set of
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules comprising:
7 encountering a control point;
8 finding at least one rule associated with the
9 control point;
10 running the at least one rule;
11 determining results on the basis of running the
12 at least one rule;
13 accessing a combining algorithm associated with
14 the control point; and
15 combining the results using the combining
16 algorithm
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- 1 47. A computer implemented process for applying a set of ✓
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules comprising:
7 encountering a first control point associated
8 with the method;
9 determining if the first control point is
10 active;
11 executing method logic of the method;
12 encountering a second control point associated
13 with the method;
14 determining if the second control point is
15 active;
16 finding a set of rules associated with one of
17 the first control point and the second control
18 point, wherein the set of rules contains not
19 less than zero rules.

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1 48. A computer implemented process for applying a set of ✓
2 rules, comprising:
3 selecting an object class;
4 selecting a method within the object class;
5 invoking the method;
6 processing rules comprising:
7 encountering a control point associated with
8 the method;
9 finding at least one rule associated with the
10 control point prior to executing method logic
11 of the method;
12 running the at least one rule;
13 obtaining results on the basis of running the
14 at least one rule; and
15 controlling the method on the basis of the
16 results.

1 49. A computer implemented process for applying a set of
2 rules as in claim 48, wherein the step of
3 controlling the method comprises:
4 exiting the method.

1 50. A computer implemented process for applying a set of
2 rules as in claim 48, wherein the step of
3 controlling the method comprises:
4 executing method logic of the method.

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1 51. A data processing system for defining an object ✓
2 comprising:
3 defining means for defining an object;
4 defining means for defining a method in the object
5 by:
6 defining means for defining method logic;
7 placing means for placing the method logic in the
8 method;
9 defining means for defining at least one control
10 point; and
11 placing means for placing the at least one control
12 point in the method wherein the method logic is
13 continuous.

1 52. A data processing system for defining an object as
2 in claim 51, wherein the step of placing the at
3 least one control point further comprises placing
4 means for placing the at least one control in the
5 method before the method logic.

1 53. A data processing system for defining an object as
2 in claim 51, wherein the step of placing the at
3 least one control point further comprises placing
4 means for placing the at least one control in the
5 method after the method logic.

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1 54. A data processing system for defining an object as
2 in claim 51, wherein the at least one control
3 comprises two control points and further comprising:
4 placing means for placing a first control in the
5 method before the method logic; and
6 placing means for placing a second control in the
7 method after the method logic.

1 55. A data processing system for defining an object as
2 in claim 51, further comprises:
3 flagging means for flagging the at least one control
4 point on the basis of being active.

1 56. A data processing system for defining an object as
2 in claim 51, wherein the step of defining the at
3 least one control point further comprising:
4 defining means for defining a rule selection
5 algorithm associated with the at least one control
6 point.

1 57. A data processing system for defining an object as
2 in claim 51, wherein the step of defining the at
3 least one control point further comprising:
4 defining means for defining a rule result
5 combination algorithm associated with the at least
6 one control point.

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1 63. A data processing system for defining a rule as in
2 claim 60, further comprising:
3 associating means for associating the rule with
4 another object class.

1 64. A data processing system for defining a rule as in
2 claim 60, further comprising:
3 associating means for associating the rule with
4 another method within the object class.

1 65. A data processing system for defining a rule as in
2 claim 60, further comprising:
3 associating means for associating the rule with
4 another control point within the method of the
5 object class.

1 66. A data processing system for applying a set of /
2 rules, comprising:
3 selecting means for selecting an object class;
4 selecting means for selecting a method within the
5 object class;
6 invoking means for invoking the method;
7 processing means for processing rules associated
8 with the method comprising:
9 encountering means for encountering a control
10 point associated with the method;
11 determining means for determining if the
12 control point is active; and
13 finding means for finding at least one rule
14 associated with an active control point.

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67. A data processing system for applying a set of rules as in claim 66, wherein the step of finding at least one rule further comprises:

- accessing means for accessing a selecting algorithm associated with the active control point; and
- selecting means for selecting at least one rule using the selecting algorithm.

1 68. A data processing system for applying a set of rules
2 as in claim 66, where in the step of processing
3 rules further comprises:
4 running means for running the at least one
5 rule;
6 determining means for determining results from
7 running the at least one rule;
8 accessing means for accessing a combining
9 algorithm associated with the control point;
10 and
11 combining means for combining the results using
12 the combining algorithm.

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- 1 69. A data processing system for applying a set of /
2 rules, comprising:
3 selecting means for selecting an object class;
4 selecting means for selecting a method within the
5 object class;
6 invoking means for invoking the method;
7 processing means for processing rules comprising:
8 encountering means for encountering a control
9 point;
10 accessing means for accessing a selecting
11 algorithm associated with the control point;
12 and
13 selecting means for selecting at least one rule
14 using the selecting algorithm.

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1 70. A data processing system for applying a set of /
2 rules, comprising:
3 selecting means for selecting an object class;
4 selecting means for selecting a method within the
5 object class;
6 invoking means for invoking the method;
7 processing means for processing rules comprising:
8 encountering means for encountering a control
9 point;
10 finding means for finding at least one rule
11 associated with the control point;
12 running means for running the at least one
13 rule;
14 determining means for determining results on
15 the basis of running the at least one rule;
16 accessing a combining algorithm associated with
17 the control point; and
18 combining means for combining the results using
19 the combining algorithm.

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1 71. A data processing system for applying a set of
2 rules, comprising:
3 selecting means for selecting means for selecting an
4 object class;
5 selecting means for selecting means for selecting a
6 method within the object class;
7 invoking means for invoking the method;
8 processing means for processing rules comprising:
9 encountering means for encountering a first
10 control point associated with the method;
11 determining means for determining if the first
12 control point is active;
13 executing means for executing method logic of
14 the method;
15 encountering means for encountering a second
16 control point associated with the method;
17 determining means for determining if the second
18 control point is active;
19 finding means for finding a set of rules
20 associated with one of the first control point
21 and the second control point, wherein the set
22 of rules contains not less than zero rules.

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1 72. A data processing system for applying a set of
2 rules, comprising:
3 selecting means for selecting an object class;
4 selecting means for selecting a method within the
5 object class;
6 invoking means for invoking the method;
7 processing means for processing rules comprising:
8 encountering means for encountering a control
9 point associated with the method;
10 finding means for finding at least one rule
11 associated with the control point prior to
12 executing method logic of the method;
13 running the at least one rule;
14 obtaining means for obtaining results on the
15 basis of running the at least one rule; and
16 controlling means for controlling the method on
17 the basis of the results.

1 73. A data processing system for applying a set of rules
2 as in claim 72, wherein the step of controlling the
3 method comprises:
4 exiting means for exiting the method.

1 74. A data processing system for applying a set of rules
2 as in claim 72, wherein the step of controlling the
3 method comprises:
4 executing means for executing method logic
5 of the method.

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1 75. A computer program product embodied on a computer ✓
2 readable medium containing instructions for a
3 computer implemented process for defining an object,
4 the instruction comprising:
5 instructions for defining an object;
6 instructions for defining a method in the object by:
7 instructions for defining method logic;
8 instructions for placing the method logic in the
9 method;
10 instructions for defining at least one control
11 point; and
12 instructions for placing the at least one control
13 point in the method wherein the method logic is
14 continuous.

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1 76. A computer program product for defining an object as
2 in claim 75, wherein the step of placing the at
3 least one control point further comprises placing
4 the at least one control in the method before the
5 method logic.

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1 77. A computer program product for defining an object as
2 in claim 75, wherein the step of placing the at
3 least one control point further comprises placing
4 the at least one control in the method after the
5 method logic.

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1 78. A computer program product for defining an object as
2 in claim 75, wherein the at least one control
3 comprises two control points and further comprising:
4 instructions for placing a first control in the
5 method before the method logic; and
6 instructions for placing a second control in the
7 method after the method logic.

1 79. A computer program product for defining an object as
2 in claim 75, further comprises:
3 instructions for flagging the at least one control
4 point on the basis of being active.

1 80. A computer program product for defining an object as
2 in claim 75, wherein the step of defining the at
3 least one control point further comprising:
4 instructions for defining a rule selection algorithm
5 associated with the at least one control point.

1 81. A computer program product for defining an object as
2 in claim 75, wherein the step of defining the at
3 least one control point further comprising:
4 instructions for defining a rule result combination
5 algorithm associated with the at least one control
6 point.

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1 83. A computer program product for defining an object as
2 in claim 75, further comprising:
3 instructions for associating at least one rule with
4 the at least one control point.

84. A computer program product embodied on a computer readable medium containing instructions for a computer implemented process for defining a rule, the instruction comprising:
instructions for creating the rule;
instructions for associating the rule with an object class;
instructions for associating the rule with a method within the object class; and
instructions for associating the rule with an occurrence of a control point within the method.

1 85. A computer program product for defining a rule as in
2 claim 84 wherein the occurrence of the control point
3 within the method being before method logic.

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1 86. A computer program product for defining a rule as in
2 claim 84 wherein the occurrence of control point
3 within the method being after method logic.

1 87. A computer program product for defining a rule as in
2 claim 84, further comprising:
3 instructions for associating the rule with another
4 object class.

1 88. A computer program product for defining a rule as in
2 claim 84, further comprising:
3 instructions for associating the rule with another
4 method within the object class.

1 89. A computer implemented process for defining a rule
2 as in claim 84, further comprising:
3 instructions for associating the rule with another
4 control point within the method of the object class.

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1 90. A computer program product embodied on a computer /
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 instructions for processing rules associated with
10 the method comprising:
11 instructions for encountering a control point
12 associated with the method;
13 instructions for determining if the control
14 point is active; and
15 instructions for finding at least one rule
16 associated with an active control point.

1 91. A computer program product for applying a set of
2 rules as in claim 90, wherein the step of finding at
3 least one rule further comprises:
4 instructions for accessing a selecting
5 algorithm associated with the active control
6 point; and
7 instructions for selecting at least one rule
8 using the selecting algorithm.

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1 92. A computer program product for applying a set of
2 rules as in claim 90, where in the step of
3 processing rules further comprises:
4 instructions for running the at least one rule;
5 instructions for determining results from
6 running the at least one rule;
7 instructions for accessing a combining
8 algorithm associated with the control point;
9 and
10 instructions for combining the results using
11 the combining algorithm.

1 93. A computer program product embodied on a computer ✓
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 instructions for processing rules comprising:
10 instructions for encountering a control point;
11 instructions for accessing a selecting
12 algorithm associated with the control point;
13 and
14 instructions for selecting at least one rule
15 using the selecting
16 algorithm.

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- 1 94. A computer program product embodied on a computer ✓
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 instructions for processing rules comprising:
10 instructions for encountering a control point;
11 instructions for finding at least one rule
12 associated with the control point;
13 instructions for running the at least one rule;
14 instructions for determining results on the
15 basis of running the at least one rule;
16 instructions for accessing a combining
17 algorithm associated with the control point;
18 and
19 instructions for combining the results using
20 the combining algorithm.
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- 1 95. A computer program product embodied on a computer /
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 instructions for processing rules comprising:
10 instructions for encountering a first control
11 point associated with the method;
12 instructions for determining if the first
13 control point is active;
14 instructions for executing method logic of the
15 method;
16 instructions for encountering a second control
17 point associated with the method;
18 instructions for determining if the second
19 control point is active;
20 instructions for finding a set of rules
21 associated with one of the first control point
22 and the second control point, wherein the set
23 of rules contains not less than zero rules.

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1 96. A computer program product embodied on a computer
2 readable medium containing instructions for a
3 computer implemented process for applying a set of
4 rules, the instruction comprising:
5 instructions for selecting an object class;
6 instructions for selecting a method within the
7 object class;
8 instructions for invoking the method;
9 processing rules comprising:
10 instructions for encountering a control point
11 associated with the method;
12 instructions for finding at least one rule
13 associated with the control point prior to
14 executing method logic of the method;
15 instructions for running the at least one rule;
16 instructions for obtaining results on the basis
17 of running the at least one rule; and
18 instructions for controlling the method on the
19 basis of the results.

1 97. A computer program product for applying a set of
2 rules as in claim 96, wherein the step of
3 controlling the method comprises:
4 instructions for exiting the method.

1 98. A computer program product for applying a set of
2 rules as in claim 96, wherein the step of
3 controlling the method comprises:
4 instructions for executing method logic of
5 the method.

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